New Jersey.—The mean temperature was 35.6°, or 2.8° below normal; the highest was 67°, at Bridgeton and Cape May C. H. on the 23d, and the lowest, 9° below zero, at Deckertown on the 18th. The average precipitation was 3.51, or 0.38 below normal; the greatest monthly amount, 4.96, occurred at Ocean City, and the least, 2.48, at Friesburg.—*E. W. McGann.*

New Mexico.—The mean temperature was 47.4°, or 2.2° above normal; the highest was 88°, at Roswell on the 12th, and the lowest, 9° at Aztec on the 16th. The average precipitation was 0.67, or 0.11 above normal; the greatest monthly amount, 1.55, occurred at Fort Bayard, and the least, trace, at Raton. Owing to the mild winter plowing and planting was carried on during the month in the warmer sections, and nearly a month ahead of last year.—*R. M. Hardinge.*

New York.—The mean temperature was 25.2°, or 5.4° below normal; the highest was 61°, at Wappingers Falls on the 20th, and the lowest, 29° below zero, at Axton on the 12th. The average precipitation was 4.08, or 1.07 above normal; the greatest monthly amount, 10.47, occurred at North Lake, and the least, 1.01, at Lyndonville.—*R. G. Allen.*

North Carolina.—The mean temperature was 47.0°, or 1.5° below normal; the highest was 79°, at Cherryville and Henrietta on the 11th, and the lowest, 5°, at Brewers on the 17th. The average precipitation was 4.48, or 0.16 below normal; the greatest monthly amount, 7.60, occurred at Linville, and the least, 2.48, at Wilmington.—*C. F. von Herrmann.*

North Dakota.—The mean temperature was 21.0°, or 0.7° above normal; the highest was 77°, at Medora on the 11th, and the lowest, 24° below zero, at Towner on the 1st. The average precipitation was 1.09, or 0.13 above normal; the greatest monthly amount, 2.65, occurred at Ellendale, and the least, 0.15 at Dunseith.—*B. H. Bronson.*

Ohio.—The mean temperature was 32.9°, or 5.5° below normal; the highest was 70°, at Hanging Rock on the 13th, and the lowest, 9° below zero, at Hillhouse on the 12th. The average precipitation was 2.35, or 1.07 below normal; the greatest monthly amount, 4.30, occurred at Mansfield, and the least, 0.92, at Hudson.—*J. Warren Smith.*

Oklahoma.—The mean temperature was 49.9°, or 0.5° above normal; the highest was 95°, at Burnett on the 11th, and the lowest, 12°, at Hopeton and Jefferson on the 1st. The average precipitation was 0.76, or 1.33 below normal; the greatest monthly amount, 2.41, occurred at Lehigh, and the least, 0.03, at Edmond.—*C. M. Strong.*

Oregon.—The mean temperature was 49.3°, or 6.1° above normal, and the highest on record for the month of March; the highest was 99°, at Merlin on the 13th, and the lowest, 11°, at Lakeview on the 26th. The average precipitation was 4.63, or 0.24 below normal; the greatest monthly amount, 11.98, occurred at Glenora, and the least, 0.15, at Prineville.—*E. A. Beals.*

Pennsylvania.—The mean temperature was 31.2°, or 3.6° below normal; the highest was 66°, at Coatesville on the 23d, and the lowest, 23° below zero, at Dyberry on the 18th. The average precipitation was 3.61, or 0.46 above normal; the greatest monthly amount, 7.31, occurred at Somerset, and the least, 2.25, at Lycippus.—*T. F. Townsend.*

South Carolina.—The mean temperature was 51.6°, or 3.1° below normal; the highest was 79°, at Charleston and Yemassee on the 30th, and the lowest, 22°, at Santuc and Spartanburg on the 17th. The average precipitation was 4.22, or 0.66 above normal; the greatest monthly amount, 7.58, occurred at Greenville, and the least, 0.96, at Pinopolis.—*J. W. Bauer.*

South Dakota.—The mean temperature was 29.0°, or about 1° above normal; the highest was 78°, at Cherry Creek on the 10th and at Interior on the 11th, and the lowest, 19° below zero, at Wessington Springs on the 16th. The average precipitation was 1.66, or about 0.58 above normal; the greatest monthly amount, 3.89, occurred at DeSmet, and the least, 0.20, at Interior.—*S. W. Glenn.*

Tennessee.—The mean temperature was 46.5°, or about 2.0° below normal; the highest was 81°, at Memphis on the 11th, and the lowest, 2°, at Bristol on the 17th. The average precipitation was 3.66 or about 2.00 below normal; the greatest monthly amount, 6.82, occurred at Oakhill, and the least, 1.83, at Trenton.—*H. C. Bate.*

Texas.—The mean temperature, determined by comparison of 47 stations distributed throughout the State, was 0.5 below normal. There was a slight excess over the extreme northwest portion of the State, and a general deficiency elsewhere, with the greatest over southwest Texas and the east coast district. The highest was 92°, at Paris on the 12th, and the lowest, 15°, at Anna on the 1st. The average precipitation, determined by comparison of 52 stations distributed throughout the State, was 2.20 above the normal. Nearly normal conditions prevailed over the northwestern half of the State while there was a marked excess over the southeastern half, with the greatest, 9.02, at Cuero. The greatest monthly amount, 10.43, occurred at Cuero, and least, 0.05, at Valentine.—*I. M. Cline.*

Utah.—The mean temperature was 43.9°, or 7.0° above normal; the highest was 86°, at St. George on the 12th, 13th, and 31st, and the lowest, 6°, at Pinto on the 5th and Soldier Summit on the 6th. The average precipitation was 0.19, or 1.41 below normal; the greatest monthly amount, 1.20, occurred near Marysvale, while none fell at six stations. It was the clearest, driest, and warmest March on record for this State.—*L. H. Murdoch.*

Virginia.—The mean temperature was 41.9°, or about 3° below normal; the highest was 75°, at Farmville on the 23d, and the lowest, 2° below zero, at Blacksburg on the 17th and at Stephens City on the 18th. The average precipitation was 3.73, or 0.12 above normal; the greatest monthly amount, 6.17, occurred at Freeling, and the least, 1.36, at Manassas.—*E. A. Evans.*

Washington.—The mean temperature was 46.9°, or 6.6° above normal, and the warmest March on record; the highest was 83°, at Southbend on the 30th, and the lowest, 16°, at Northport on the 2d. The average precipitation was 3.91, or 1.08 above normal; the greatest monthly amount, 15.59, occurred at Union, and the least, trace, at Loomis.

On the account of the exceptional mildness of the month, the weather conditions were extremely favorable for the growth of the staple crops and the development of fruit. More than the usual amount of plowing and spring seeding was accomplished. Fall sown wheat is in splendid condition, and the pastures are as far advanced as is usual in May.—*G. N. Salisbury.*

West Virginia.—The mean temperature was 38.5°, or 3.5° below normal; the highest was 78°, at Madison on the 13th, and the lowest, 5° below zero, at Burlington on the 18th. The average precipitation was 3.79, or 0.05 below normal; the greatest monthly amount, 6.48, occurred at Bluefield, and the least, 2.18, at Parkersburg.—*E. C. Vose.*

Wisconsin.—The mean temperature was 24.7°, or about 3.0° below normal; the highest was 62°, at Spooner on the 31st, and the lowest, 24° below zero, at Butternut on the 16th. The average precipitation was 1.26, or 0.67 below normal; the greatest monthly amount, 2.86, occurred at Pepin, and the least, 0.40, at Stevens Point.—*W. M. Wilson.*

Wyoming.—The mean temperature was 35.1°, or 6.1° above normal; the highest was 80°, at Burlington on the 13th and at Bittercreek on the 25th, and the lowest, 16° below zero, at Douglas on the 4th. The average precipitation was 0.44, or 0.97 below normal; the greatest monthly amount, 3.13, occurred at Fort Yellowstone, while none fell at Embar and Lusk.—*W. S. Palmer.*

SPECIAL CONTRIBUTIONS.

COMPARATIVE THERMOMETER READINGS AT NEW YORK, N. Y.

By ALFRED J. HENRY, Professor of Meteorology.

In the MONTHLY WEATHER REVIEW for October, 1898, Vol. XXVI, page 455, an account is given of the removal of the Weather Bureau office in New York, N. Y., from the Manhattan Building, No. 66 Broadway, to the American Surety Building, No. 100 Broadway. The roof of the last-named building is flat and appeared to offer exceptionally good exposures for the various meteorological instruments. The presence of an exhaust pipe to the southeastward of the thermometer shelter was noted as an objectionable feature at the time of removal, but it was believed it would only affect the thermometer readings when the wind was from the southeast. The experience of a single winter was, however, sufficient to convince the official in charge of the station that artificial heat was being communicated to the thermometers, not only by the exhaust pipe above referred to, but by a number of ventilating shafts that discharged hot air at varying distance from the thermometers.

Acting on Mr. Emery's recommendation, an instrument shelter was erected on the roof of the adjoining premises—the Schemerhorn Building—at a point slightly over 200 feet below the shelter on the American Surety Building but still about 110 feet above the street. The roof of the Schemerhorn Building is 101.5 feet above the Broadway sidewalk. The floor of the instrument shelter was placed 6.3 feet above the roof of the building and the thermometers were placed on cross pieces about a foot higher.

Comparative readings between thermometers in the two shelters were made from October 27 to November 5, and from November 11 to December 31. The mean results for the first period showed that the temperatures in the two shelters were

almost identical, except in the afternoon, when the maximum thermometer on the American Surety Building gave higher readings.

The second series of comparative readings, made later in the season, gave individual differences of as much as 10°, the thermometers on the American Surety Building reading in almost all cases the higher. The mean results are as follows:

Average temperature in standard thermometer shelters on the roofs of the American Surety and Schemerhorn buildings, respectively.

DRY THERMOMETER.

Date.	8 a. m.			8 p. m.		
	American Surety Building.	Schemerhorn Building.	Difference, A–S.	American Surety Building.	Schemerhorn Building.	Difference, A–S.
	°	°	°	°	°	°
November 11–30	42.4	41.0	1.4	45.9	45.1	0.8
December 1–31	35.7	33.8	1.9	39.4	37.1	2.3
MAXIMUM THERMOMETER.[1]						
November 11–30	48.1	46.0	2.1	52.8	49.7	3.1
December 1–31	43.1	39.1	4.0	45.7	42.0	3.7
MINIMUM THERMOMETER.[1]						
November 11–30	38.3	39.0	−0.7	39.9	40.1	−0.2
December 1–31	31.8	32.1	−0.3	31.5	31.5	0.0

[1] Set at 8 a. m. and 8 p. m. daily.

Thus we see the greatest differences are generally found in the daytime, although the maximum temperatures on the American Surety Building during the night hours averaged almost 4° higher than those on the lower building; the minimum temperatures on the American Surety Building, on the other hand, were slightly lower than those on the Schemerhorn Building. It is also to be noticed that the minimum temperatures in the two locations approached equality as the weather became colder. During December the mean results of the minimum temperatures, registered between 8 a. m. and 8 p. m., were identical, and those of the night-time, from 8 p. m. to 8 a. m., differed by only a fraction of a degree.

The monthly mean temperatures of the winter of 1898–1899, for the New York station, are probably a degree and a half too high, as compared with those of 1899–1900 by reason of the influence of artificial heat on the thermometers.

LOSS OF LIFE IN 1899 BY LIGHTNING.

By ALFRED J. HENRY, Professor of Meteorology.

The loss of human life by lightning in the United States during 1899, was greater than for any preceding year for which statistics have been collected.

Five hundred and sixty-two persons were killed outright or suffered injuries which resulted in death, and 820 persons received injuries varying in severity from slight physical shock to painful burns and temporary paralysis of some part of the body.

In the great majority of fatal cases death came quickly; in a few instances only did the patient regain consciousness after being struck. On the other hand, many persons were struck and rendered unconscious for a time, but soon rallied from the shock and regained their usual health. The most common form of disability resulting from lightning stroke appears to be partial paralysis of the arms and legs.

Many apparently remarkable escapes from death were chronicled during the year. In several cases the clothing of the person struck was set on fire, the body scarred and burned, yet, strange to say, complete recovery followed. This apparent immunity from death on the part of some persons is not easily explained. If we assume that the current is of an oscillatory character, that is to say, made up of a number of rapid discharges and recharges, we might argue, from the analogous case of a wire conductor the interior of which, in the case of very rapid alternations, may be almost free from current, that the injury to the human body would naturally be confined to the surface. Again we might explain the phenomenon by attributing it to the ability of certain individuals to withstand a much greater shock than others. It has been shown that among the lower animals the ability to resist injury varies widely in different members of the same family, and it is quite probable that the same characteristic holds in the case of man. The evidence afforded by cases of accidental contact with wires carrying a very high voltage is inconclusive, since the electrical contact in such cases is quite generally imperfect and rarely the same for any number of occurrences. There is as yet much uncertainty as to the maximum voltage that can be applied to the human body without fatal results.

Some anomalous results as regards the visible effect of lightning on the human body were observed during the year. In some cases of death the person struck showed scarcely any outward marks of the discharge, death apparently resulting from total collapse of the cellular tissues of the body. In other cases the apparent cause of death was manifest in the discoloration and burning of various portions of the body. One of the most singular cases in this respect was that of two brothers who were killed while driving together in a dog cart. They were found shortly after the flash lying side by side on the road, apparently as they had fallen out of the back of the vehicle. *The elder brother had no external sign of injury.* The younger brother presented the following appearance: The epidermis was burned over the chest and abdomen, not continuously, but in a number of circular holes from one-sixteenth to one-quarter of an inch in diameter. The metallic collar stud was fused and the skin beneath was deeply burned. The back from the neck to the buttocks was burned, but less severely than in front. The vest and shirt were charred, but the waistcoat and coat were uninjured. The ground was not disturbed where they fell.

The zone of danger from a stroke of lightning appears to be somewhat larger than is commonly supposed. In the ordinary conception of a lightning flash account is generally taken of a single discharge from cloud to earth or vice versa, with a diameter at the bounding surface between earth and air not exceeding a few inches at most. The circumstances attending fatalities by lightning are often inexplicable, if we confine ourselves to the supposed action or influence of a single bolt. Thus, we have an account of the killing of a span of horses attached to a wagon, and a man in the rear of the wagon, while the driver in front was not seriously injured. Other cases of a somewhat similar nature confirm the belief that not one but a number of discharges may pass from cloud to earth or vice versa within a comparatively small radius, within which, however, there may be small areas of safety. Photographs of the so-called ribbon flashes show that at times the discharge has a breadth of from 30 to 40 feet at the surface of the earth. Within these broad paths there appear to be narrow lanes, which are apparently free from violent electrical disturbances. A person who is fortunate enough to stand in one of these lanes might easily escape serious injury, while others near by would suffer death.

The greatest number of fatalities, 45 per cent, occurred in the open; the next greatest number, 34 per cent, occurred in houses; 11 per cent occurred under trees, and the least of all, 9 per cent, in barns.